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10/549,620	12/04/2006	Karl-Heinz Hohenwarter	4303-1006	7996

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EXAMINER	
KO, STEPHEN K	

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1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/549,620	HOHENWARTER, KARL-HEINZ	
	Examiner	Art Unit	
	STEPHEN KO	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09/19/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :09/19/2005; 04/02/2008; 10/30/2008.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it is too long. Correction is required. See MPEP § 608.01(b).

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

4. Claims 6 and 7 are objected to because of the following informalities: a) Claim 6 recites limitation "**a** collector level" is apparently should be written as "**the** collector level"; b) Claim 7 recites limitation "which is spun **of** the substrate during rotation" is apparently should be written as "which is spun **off** the substrate during rotation". Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 recites the limitation "rotation axis" in L.8 of claim 1. There is insufficient antecedent basis for this limitation in the claim.

8. Regarding claim 2, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

9. Claim 7 is unclear since it does not clearly identify processing steps. Claim 8 is rejected as being dependent on claim 7.

10.

11. ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 1-2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sumnitsch (US 4,903,717) in view of either Sugimoto et al (US 2003/0140949) or JP 2002-305177.

For claims 1-2 and 4, Sumnitsch teaches a device comprising a support (read as spin-chuck, Fig.3, #2); at least one joint aperture (read as dispenser, Fig.3, #42, col.5,

L.14); a tank (read as liquid collector, Fig.3, #20, col.4, L.52) having at least two collector levels (Fig.3) and different ducts (read as collectors, Fig.3, #25 and #26, col.4, L.63) circumferentially surrounding the support (Fig.3); a drive mechanism (col.4, L.56-57) for moving the support upwards and downwards (read as moving spin-chuck relative to liquid collector substantially along the rotation axis, col.4, L.56-57); at least two exhaust levels (Fig.3, unlabeled, levels at apertures #34 and #35) capable of collecting gas from the interior of the tank (Fig.3).

Sumnitsch remains silent about at least one exhaust influencing means, which is associated with at least one of said at least two exhaust level, for electively varying gas flow conditions in at least one of said at least two exhaust levels, wherein the exhaust influencing means is a flow control modulating valve and is connected to a controlling means.

However, using valves as a means of influencing and controlling a gas flow within a device is well known in the art. Hence, either Sugimoto et al or JP 2002-305177 teaches an exhaust regulating valve (read as exhaust influencing means/flow control modulating valve/butterfly valve, Fig.4, #60, paragraph [0068]), which is connected to a control unit (Fig.9, #100, paragraph [0069]) to control a volume of exhaust (paragraph [0069]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Sumnitsch by adding a flow control modulating valve to apertures as mentioned in either Sugimoto et al or JP 2002-305177 to control a volume of exhaust (Sugimoto et al, paragraph [0069]) thus prevents

vaporization of moisture from the liquid and ruffling of the surface of the liquid (Sugimoto et al, paragraph [0087]). It would also have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of combined teaching of Sumnitsch and either Sugimoto et al or JP 2002-305177 by adding a controlling means to control the flow modulating valve and other component of the device of combined teaching of Sumnitsch and either Sugimoto et al or JP 2002-305177 (e.g. drive mechanism, motor...) as inspired by either Sugimoto et al or JP 2002-305177 to automate a process. Since all the structures are found in the combined prior art, it is fully capable of performing the functions as recited in claims 1-2 and 4.

For claim 5, note that Sumnitsch teaches the apertures (read as orifices, Fig.3, #34 and #35, col.5, L.3) of at least one of the exhaust level are connected to one of the two collector levels (Fig.3).

For claim 6, note that Sumnitsch teaches at least one of the at least two exhaust level is arranged above or below the collector levels of the tank (Fig.3).

15. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 198 07 460 in view of Sumnitsch (US 4,903,717) in further view of Nishizawa et al (US 4,871,417).

For claims 1 and 3, DE 198 07 460 teaches a device comprising a carrier (read as spin-chuck, Fig.2, #2, abstract) for holding and rotating a substrate; a dispenser (Fig.2, #12) for dispensing a liquid onto at least one surface of the substrate; a liquid collector (Fig.2, unlabeled, the whole device surrounding the carrier #2) circumferentially surrounding the carrier for collecting liquid spun off the substrate, with

at least two collector levels for separately collecting liquids (Fig.2); at least two exhaust levels (Fig.2, #6 and #8) for separately collecting gas from the interior of the liquid collector.

DE 198 07 460 remains silent about a lifting means for moving spin-chuck relative to liquid collector substantially along the rotation axis.

Sumnitsch teaches a drive mechanism (col.4, L.56-57) for moving the support upwards and downwards (read as lifting means for moving spin-chuck relative to liquid collector substantially along the rotation axis, col.4, L.56-57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of DE 198 07 460 by adding a lifting means for moving spin-chuck relative to liquid collector substantially along the rotation axis as mentioned in Sumnitsch to successfully move the spin-chuck upward and downward as indicated in DE 198 07 460 (DE 198 07 460, Fig.2, arrow A).

DE 198 07 460 and Sumnitsch remain silent about at least one exhaust influencing means, which is associated with at least one of said at least two exhaust level, for electively varying gas flow conditions in at least one of said at least two exhaust levels, wherein the exhaust influencing means is a closing valve.

However, using valves as a means of influencing and controlling a gas flow within a device is well known in the art. Hence, Nishizawa et al teach a valve (read as closing valve/exhaust influencing means, Fig.1, #35, col.4, L.23) to control a volume of exhaust.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of DE 198 07 460 and Sumnitsch by adding a valve as mentioned in Nishizawa et al to stop exhausting and to control a volume of exhaust. Since all the structures are found in the combined prior art, it is fully capable of performing the functions as recited in claims 1 and 3.

16. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 198 07 460 in view of Sumnitsch (US 4,903,717) in further view of either Sugimoto et al (US 2003/0140949) or JP 2002-305177.

DE 198 07 460 teaches a method for controlling gas flow within a device comprising the steps of providing a carrier (read as spin-chuck, Fig.2, #2, abstract) for holding and rotating a substrate; a dispenser (Fig.2, #12) for dispensing a liquid onto at least one surface of the substrate; a liquid collector (Fig.2, unlabeled, the whole device surrounding the carrier #2) circumferentially surrounding the carrier for collecting liquid spun off the substrate, with at least two collector levels for separately collecting liquids (Fig.2); at least two exhaust levels (Fig.2, #6 and #8) for separately collecting gas from the interior of the liquid collector by generating gas flow in at least two of the exhaust levels.

DE 198 07 460 remains silent about a step of providing lifting means for moving spin-chuck relative to liquid collector substantially along the rotation axis.

Sumnitsch teaches a step of providing a drive mechanism (col.4, L.56-57) for moving the support upwards and downwards (read as lifting means for moving spin-chuck relative to liquid collector substantially along the rotation axis, col.4, L.56-57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of DE 198 07 460 by adding a step of providing lifting means for moving spin-chuck relative to liquid collector substantially along the rotation axis as mentioned in Sumnitsch to successfully move the spin-chuck upward and downward as indicated in DE 198 07 460 (DE 198 07 460, Fig.2, arrow A).

Both DE 198 07 460 and Sumnitsch do not teach a step of selectively generating different gas flow conditions in at least two of said exhaust levels.

However, either Sugimoto et al or JP 2002-305177 teach a step of selectively generating different gas flow conditions (paragraph [0073] and paragraph [0087]) through an exhaust pipe (Fig.4, #35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of combined teaching of DE 198 07 460 and Sumnitsch by adding a step of selectively generating different gas flow conditions in at least two of said exhaust levels as inspired by either Sugimoto et al or JP 2002-305177 to prevents vaporization of moisture from the liquid and ruffling of the surface of the liquid (Sugimoto et al, paragraph [0087]).

For claim 8, note that the gas pressure adjacent to the rotating substrate above and below said substrate will be substantially the same since the gas flow though the two exhaust levels are the same.

Election/Restrictions

15. Applicants' attention is drawn to the fact that the instant claims are directed to at least two distinct inventions and the inventions lack of unity – an apparatus, represented

by claims 1-6 (Group I) and method, represented by claims 7-8 (Group II). The restriction requirement is not made at this time, however it may be imposed later if the claims are amended to introduce additional limitations to each invention, which would require an additional search in each Group of claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN KO whose telephone number is (571)270-3726. The examiner can normally be reached on Monday to Thursday, 7:30am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on 571-272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SK
/Michael Kornakov/
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